

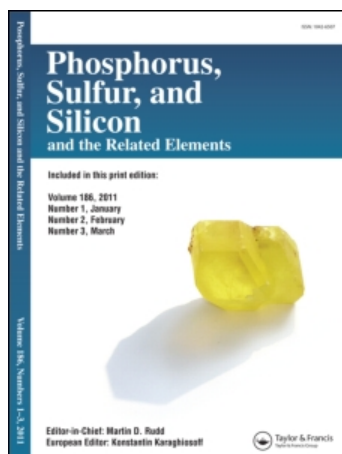
This article was downloaded by:

On: 29 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

Bis(trimethylsilyl)Chalcogenides

Jari Taavitsainen^a; Risto S. Laitinen^a

^a Department of Chemistry, University of Oulu, Oulu, Finland

To cite this Article Taavitsainen, Jari and Laitinen, Risto S.(1994) 'Bis(trimethylsilyl)Chalcogenides', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 93: 1, 469 – 470

To link to this Article: DOI: 10.1080/10426509408021908

URL: <http://dx.doi.org/10.1080/10426509408021908>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

BIS(TRIMETHYLSILYL)CHALCOGENIDES: A NOVEL SOURCE FOR HETEROCYCLIC CHALCOGEN MOLECULES

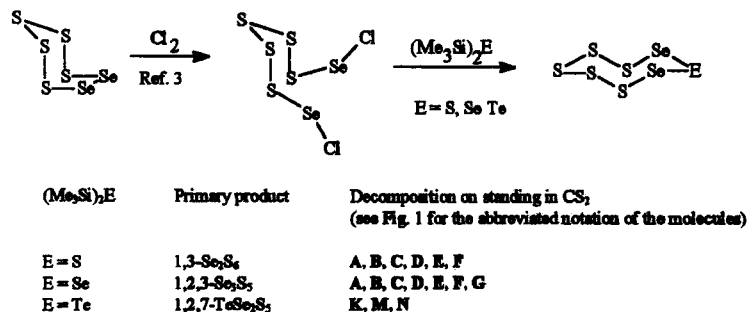
JARI TAAVITSAINEN and RISTO S. LAITINEN

Department of Chemistry, University of Oulu, Linnanmaa, FIN-90570 Oulu, Finland

Abstract Bis(trimethyl)silyl sulfide, selenide, and telluride have turned out to be promising starting materials for the production of heterocyclic chalcogen molecules. Some reactions and the identification of the products are summarized in this paper.

Sulfur and selenium are known to form a complex binary system with a wide variety of heterocyclic selenium sulfides with ring sizes of 6-8 and 12.¹ Tellurium-containing heterocycles are much sparser in number and significantly less stable. Their existence has recently been demonstrated in molten mixtures of sulfur, selenium, and tellurium.² We describe here the utilization of $(\text{Me}_3\text{Si})_2\text{E}$ ($\text{E} = \text{S}, \text{Se}, \text{Te}$) as a convenient starting material for heterocyclic chalcogen molecules. The products have been identified by ^{77}Se and ^{125}Te NMR spectroscopy (see Fig. 1). Schemes 1 and 2 summarize the reactions carried out in this work.

Scheme 1



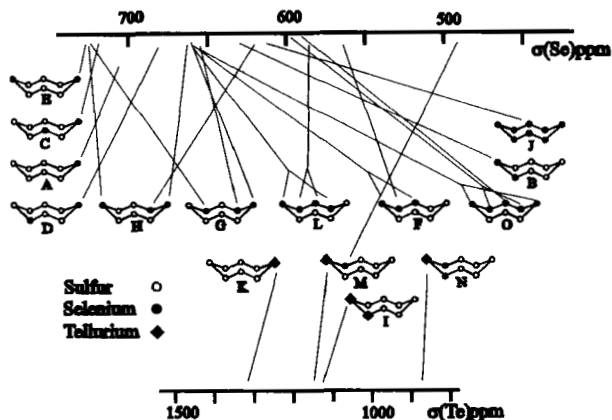
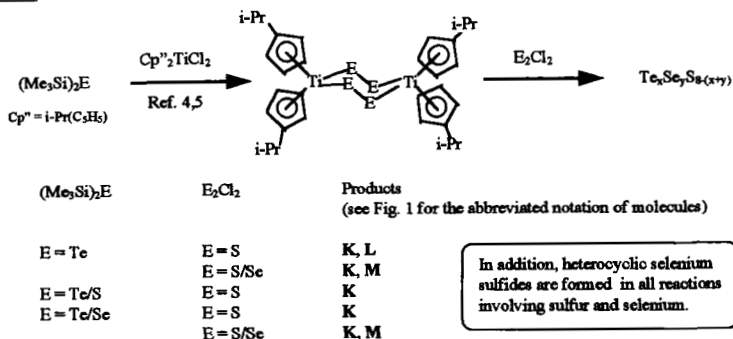
Scheme 2

FIGURE 1 ^{77}Se chemical shifts of binary selenium sulfides are known.⁶ The Te-containing species have been identified using the linear relationship between ^{125}Te and ^{77}Se chemical shifts,⁷ and the dependence of the chemical shifts on the electronegativity of the neighboring atoms.^{2,6} ^{77}Se - and ^{125}Te -enrichment (92 %) provided information of $^nJ_{\text{TeSe}}$ coupling constants² and confirmed the assignment.

REFERENCES

1. R.S. Laitinen, P. Pekonen, and R.J. Suontamo, *Coord. Chem. Rev.*, **130**, 1 (1994).
2. T. Chivers, R.S. Laitinen, and J. Taavitsainen, *Inorg. Chem.*, **32**, 337 (1993).
3. M. Pridöhl, R. Steudel, and F. Baumgart, *Phosphorus Sulfur Silicon Relat. Elem.*, **65**, 169 (1992).
4. D. Fenske and A. Grissinger, *Z. Naturforsch.*, **45B**, 1309 (1990).
5. D.M. Giolando, M. Papavassiliou, J. Pickard, T.B. Rauchfuss, and R. Steudel, *Inorg. Chem.*, **27**, 2596 (1988).
6. R.S. Laitinen and T.A. Pakkanen, *Inorg. Chem.*, **26**, 2598 (1987).
7. H.C.E. McFarlane and W. McFarlane, *J. Chem. Soc., Dalton Trans.*, 2416 (1973).